List of designations and abbreviations

B_i (weighted) extended B-splines (WEB-splines)

b_i inner B-splines

b_j outer B-splines

b_k relevant B-splines

d dimension of B-Splines

dist   distance function

$\text{dist}(x)$ distance of point x from boundary Γ

$c_{i,j}$ coupling coefficients

f perturbation function (right hand side of the differential equation)

FE   Finite Element

h grid width, edge length

I index set of the inner splines

$I(j)$ index set of the inner splines coupled to an outer spline

i index of an inner spline

J index set of the outer splines

$J(i)$ index set of the outer splines coupled to an inner spline

j index of an outer spline

k d-dimensional grid index

m order of convergence

n degree of B-splines

p_i d-variate polynomial of degree n

Q_k support of B-spline with index k

s bound of the support portion in Ω

u solution of the differential equation

v flow velocity

$w(x)$ weight function

WEB   weighted extended B-spline

x_i weight point in the simulation region

Z_k grid cells

δ parameter, the width of the strip in which the weight function rises

Γ boundary of the simulation region

Ω simulation region

1   definition of the simulation region

2   input and storage of boundary conditions

3   establishment of control parameters

4   determination of a grid and cell classification

5   classification of the B-splines

6   determination of the coupling coefficients

7   determination of a weight function

8   determination of weight points and scaling factors

9   assembling of a system of equations

10   solution of the system of equations

11   computation of an approximate solution

12   output of the approximate solution

20   control points

21   grid

22   outer grid cells

23   grid cells on the boundary

24   inner grid cells

25   stream lines

30   computer means

31 keyboard

32 read station

33 receiving station

34 output means

35 central control means

36 computer unit

37 storage means

38 data medium